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This study concludes that prime vendor support can create an innovative partnership between the Army and the Apache's prime vendor that will minimize the time it takes to deliver parts to mechanics and delay the purchasing of partsuntil they are needed to complete repairs. However, as the Army pursues a strategy of transformation needed to get from today's multiecheloned logistics system to more streamlined and effecient processes of support it must proceed with extreme caution. The complexities of resource management and the effects of changing existing processes to new concepts of support mandate further analysis and the development of procedures that will mitigate the risks associated with prime vendor support.

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AN ANALYSIS OF PRIME VENDOR SUPPORT FOR THE AH64 APACHE

A thesis presented to the faculty of the U.S. Army Command and General Staff College in partial fulfillment of the requirements for the degree

MASTER OF MILITARY ART AND SCIENCE

by

ANTHONY W. ANGELO, MAJ, USA
B.S., Embry Riddle Aeronautical University, Daytona Beach, Florida, 1985

Fort Leavenworth, Kansas
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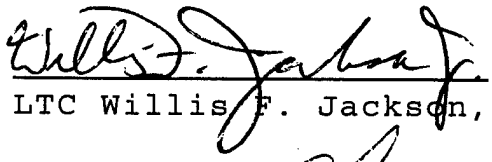
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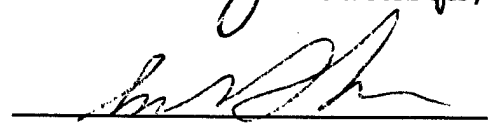
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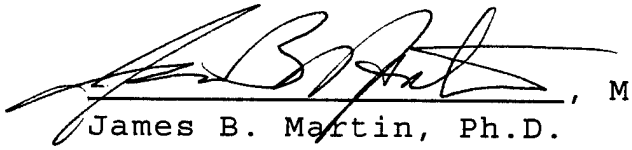
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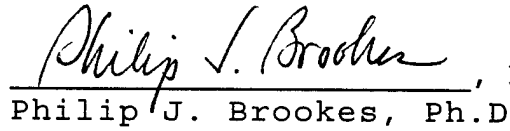
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ABSTRACT

AN ANALYSIS OF PRIME VENDOR SUPPORT FOR THE AH64 APACHE, by MAJ Anthony W. Angelo, USA, 83 pages.

This study investigates the use of prime vendor support for the Army's AH64 Apache helicopter. It defines the term prime vendor support and it analyzes the reasons for applying this concept of logistical support to the Army's aviation support doctrine. The study also shows why privatization of supply part management has become not only necessary, but a driving force in the development and future application of prime vendor support.

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While undertaking any endeavor, one is apt to rely on the experience of those who have preceded one's self in similar tasks. I could not have completed this study without the leadership of LTC Willis F. Jackson, the technical expertise of LTC Steven Boshears, and the wisdom of Dr. James B. Martin. Without their devotion of time and effort toward the completion of this thesis, I am afraid it would never have been completed.

Perhaps the most difficult part of this particular endeavor was finding a starting point from which to begin my research. Understanding the concepts of prime vendor support was crucial to knowing which path would lead me to the completion of this thesis. It was LTC Scales who placed me on that path by helping me understand the concept of prime vendor support when there was no doctrinal definition to rely on.

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LIST OF ABBREVIATIONS

ARNG	Army National Guard
AMCOM	Aviation & Missile Command
AVIM	Aviation Intermediate Maintenance
AVUM	Aviation Unit Maintenance
CASCOM	Combined Arms Support Command
CCAD	Corpus Christi Army Depot
CFSR	Contract Field Service Representative
DDJC	Defense Depot San Joaquin
DLA	Defense Logistics Agency
DOD	Department of Defense
DS4	Direct Support Unit Standard Supply System
DVD	Direct Vendor Delivery
EDI	Electronic Data Interchange
EUSA	Eighth United States Army (Korea)
FMC	Fully Mission Capable
FMPIT	Financial Management Process Improvement Team
FORSCOM	Forces Command
GAO	Government Accounting Office
GOSC	General Officer Steering Committee
IPT	Integrated Product Team
LAR	Logistics Assistance Representative

LOGSA	Logistic Support Activity
MACOM	Major Command
MMC	Materiel Management Center
MEO	Most Efficient Organization
NTC	National Training Center
NMC	Not Mission Capable
OIPT	Overarching Integrated Product Team
OMB	Office of Management and Budget
OSC	Objective Supply Capability
OST	Order Ship Time
OSTPIT	Order Ship Time Process Improvement Team
PIT	Process Improvement Team
PVS	Prime Vendor Support
RCT	Repair Cycle Time
RCTPIT	Repair Cycle Time Process Improvement Team
SDPIT	Stockage Determination Process Improvement Team
SRA	Specialized Repair Activity
TADS	Target Acquisition & Designation System
TAACOM	Tank Automotive and Armaments Command
TUFMIS	Tactical Unit Financial Information System
UPS	United Parcel Service

USAR	United States Army Reserve
USAREUR	United States Army Europe
VG	Velocity Group
VM	Velocity Management
WIPT	Working Level Integrated Product Team

CHAPTER 1

INTRODUCTION

Overview

For over forty years the Army's helicopters have continued to evolve into increasingly sophisticated machines. Modern technologies have been incorporated into their flight, navigation, target acquisition, and subarmament systems to increase operational capabilities and battlefield lethality. The Army's aviation support doctrine must keep pace with this evolution in technology. The maintenance and supply operations conducted in support of the newer and more sophisticated helicopters are technically difficult and manpower-intensive. Additionally, at a time of technological advancement, personnel shortages are limiting the number of qualified technicians required to maintain the Army's most advanced equipment.[1] In order to obtain the peace dividend anticipated since the end of the cold war, the force structure has been reduced, causing manpower shortages in the aviation

logistics structure. The maintenance concepts and the logistical support practices must evolve to ensure that battlefield commanders can rely on a high operational readiness rate of their assets.

Background

The Army's Apache helicopter is arguably the most advanced attack helicopter in the world. The primary mission of the Apache is to acquire targets and destroy them with laser-guided Hellfire missiles, thirty-millimeter machine-gun fire, and 2.75-inch rockets. In order for the AH64 helicopter to perform this mission, it must be maintained in a state of readiness. In this case, readiness is defined as the availability of the aircraft, with all its weapon systems, to perform the full range of missions stated above. The Army Regulation 700-138 establishes a goal of 70 percent full mission capability for the Apache. This means the aircraft and its systems must be fully operational 70 percent of the time. However, the Army has had difficulty meeting this goal. The Apache maintenance units

have not always been able to maintain their helicopters at or above the Department of the Army's material readiness goals (see appendix A). The maintenance organizations appear to be much too small and are at times undermanned. Additionally, the high failure rates of the Apache's sophisticated components also create a burden on the maintenance and supply personnel and make it increasingly difficult to reach materiel readiness goals.[2]

Scope

The time may be ripe for change. The role of the civilian contractors in the Army's aviation logistics has been increasing due to personnel shortages and a national move toward privatization. In the Apache's case, the Army has come to rely on contractors for all levels of aircraft maintenance. Changes in the methods of employing aviation support assets allow for the use of noncombatants in a theater of operation, and commanders have become more willing to accept the use of civilians in the aviation maintenance system. New concepts on the

use of contractors are emerging. Recently, the Army has received an unsolicited proposal from a defense industry contractor to provide prime vendor support (PVS) for the Apache helicopter. The Army's use of PVS for a major battlefield system is not an entirely new concept. However, the extent to which it is used to maintain Army aircraft could have a broad impact on Army doctrine. There exists a need to evaluate the use of contractors and this concept of PVS for the Apache prior to accepting unsolicited proposals from contractors whose main concern may be self-preservation in an era of defense downsizing.

Key Definitions

Definitions essential to this study are:

Best Practices. These are innovative private sector business practices that focus on logistics management and are designed to meet customer needs and retain profitability.

Contract Field Service Representative. This is a representative of a particular company, who is contracted for by the Army to lend technical and

logistical expertise for a particular system or component on a larger weapon system.

Contracting Out. This is the hiring of a private company to perform an entire public service originally intended for performance by a government employee.

Logistics. This is the art and science of the management, engineering, and technical activities concerned with requirements, design, supply, and maintenance of resources.

Logistics Assistance Representative. This is a Department of the Army civilian employee assigned to lend technical and logistical expertise to Army units on specific pieces of technical equipment.

OMB Circular A-76. This is a document requiring government agencies to perform analysis to determine if public government functions can be contracted to the private sector.

Order Ship Time. This is the time elapsed from requisition of an item to the receipt of the item by the user.

Outsourcing. This is the practice of

contracting with a private company to provide goods or services formerly provided by government agencies.

Privatization. This is the hiring of a private company to perform tasks formerly completed by public employees.

Prime Vendor Support (PVS). There is no doctrinal definition for this term. Its use varies in meaning depending on the agency that applies it. Therefore, I have defined the term through my research as it relates to the support of the Army's Apache helicopters by the manufacturer. Prime vendor support is the privatization of supply parts management by the prime vendor. It includes the shifting of inventory, inventory management, transportation, and personnel costs relating to the logistics of the AH64 Apache from the government to a commercial firm.

Repair Cycle Time. This is all time inclusive of when parts or equipment are found to be unserviceable on the flight-line, through the depot, to ready for issue.

Stock Determination. This relates to the stocking of the right parts in the right place to ensure uninterrupted logistics support.

Velocity Group. This is a board of senior army logisticians dedicated to implementing the Velocity Management Program.

Velocity Management. This is an Army program designed to improve four key areas of logistics: repair of components, ordering and shipment of parts, inventory levels, and financial management.

All other terms peculiar to this study will be explained in the text.

Thesis

Should U.S. Army doctrine include the concept of prime vendor support in the logistics of the AH64 Apache helicopter?

Subordinate Questions

1. What is prime vendor support?
2. What are the benefits and costs of prime vendor support?

3. How does prime vendor support affect the Army's maintenance systems?

4. How does prime vendor support affect the Army's supply system?

5. How will prime vendor support affect personnel training?

6. Can prime vendor support be applied worldwide and under conditions of combat?

7. What are the alternatives to prime vendor support?

Limitations

This research may be limited by proprietary concerns of the defense contractor. A close scrutiny of the existing proposal may not be possible without the concurrence of contracting personnel.

Delimitation

The primary purpose of this study will be to determine if the Army's doctrine should embrace PVS as a method for maintaining the AH64 Apache

helicopter. However, this study should be applicable to determining the use of PVS for other sophisticated helicopters and possibly other major pieces of Army equipment.

Significance of the Study

Failure to optimize the support systems of the Apache helicopter could result in inefficiencies, increased cost, and operational readiness rates below Department of the Army standards. A smaller force mandates the need for new and innovative ways to maintain increasingly more sophisticated equipment. However, consideration must be given to all the implications associated with the concept of prime vendor support prior to changing the Army's existing aviation support doctrine. Will embracing prime vendor support affect the Army's ability to deploy aviation assets worldwide? Will tables of organization and equipment need to be adjusted to conform to a new aviation maintenance structure? How will training be affected? These and many similar questions must be identified and answered in

order to shape the Army's maintenance structure so that it moves into the next millennium with a doctrine that will adequately support current and future advances in technology.

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[1] Samuel S. Evans, "Aviation Contract Maintenance and its Effect on AH64 Unit Readiness" (Master of Military Art and Science Thesis, U.S. Army Command and General Staff College, 5 June 1997), 32.

[2] Ibid., 47.

CHAPTER 2

REVIEW OF LITERATURE

Government Accounting Office

The General Accounting Office (GAO) has conducted many recent studies focusing on the greater use of contractors as a means to reduce the costs associated with the Army's current logistics system. These studies were conducted pursuant to congressional request and have been completed over a ten-year time span. The main focus of the GAO studies is inefficiencies of supply parts management by the Department of Defense (DOD). These studies are used extensively to identify trends of logistics management within DOD, and to determine if recommendations made by the GAO are related to the PVS concept.

The GAO examined the Army's logistics operations and improvement efforts by visiting the Defense Logistic Agency's (DLAs) Defense Distribution Depot at Corpus Christi, Texas; the DLA Premium Services System at Memphis, Tennessee; the Army depot

maintenance facility at Corpus Christi, Texas; and the 101st Airborne Division at Fort Campbell, Kentucky. At those locations, the GAO conducted interviews with supply and maintenance personnel and discussed the operations of the Army's current logistics system, customer satisfaction, planned improvements to their logistics system, and potential application of private sector logistics practices to their operations. The GAO also reviewed and analyzed detailed information on inventory levels and usage, repair times, and other related logistics performance measures.[1]

The GAO used information obtained by comparing Department of Defense (DOD) logistics practices to those of commercial airlines to identify leading commercial practices that could be used by the DOD. This information, which was collected by making an extensive literature search, identified leading inventory management concepts and detailed examinations and discussions of logistics practices used by British Airways, United Airlines, Southwest Airlines, American Airlines, Federal Express,

Boeing, the Northrop-Grumman Corporation, and TriStar Aerospace. They also participated in roundtable discussions and symposiums with recognized leaders in the logistics field to obtain information on how companies are applying integrated approaches to their logistics operations and establishing supplier partnerships to eliminate unnecessary functions and reduce costs. To gain a better understanding on how companies are making breakthroughs in logistics operations, the GAO attended and participated in the Council of Logistics Management's annual conferences in San Diego, California, and Orlando, Florida.[2]

During an investigation into the reliability of the Army's budget request for spare and repair parts, the GAO held discussions with responsible officials and reviewed Army regulations to determine the process used by the Army to identify its spare parts needs for its budget development process. In that particular investigation, the GAO focused on the process the Army uses to identify items that are in short supply. The GAO also studied the budget

stratification process, which is the major database input used in the Army's budget development process.[3]

During another investigation, this one dealing with the Army's management of surplus usable aircraft parts, the GAO reviewed policies, procedures, disposal histories, transaction histories, related records obtained from Defense Reutilization and Marketing Offices (DRMO), item managers, and document disposal practices. They interviewed policy officials, disposal office personnel, item managers and equipment specialist. To determine the DOD's policies and practices for destroying aircraft parts during the disposal process, the GAO held discussions and performed work at the Office of the Deputy Under Secretary of Defense (Logistics), Washington, D.C.; the Army, the Navy, and the Air Force Headquarters, Washington, D.C.; the Defense Logistics Agency, Fort Belvoir, Virginia; and the DOD Inspector General, Washington, D.C., and Columbus, Ohio.[4]

To obtain information on how surplus parts are received and processed for sale, the GAO documented

procedures and practices at three DRMOs located in Oklahoma City, Oklahoma; San Antonio, Texas; and Corpus Christi, Texas. According to DOD officials, the Oklahoma City, and San Antonio DRMOs handle the largest volume of surplus aircraft parts. Since these DRMOs handle surplus parts used mostly on Air Force and Navy aircraft, the GAO selected the Corpus Christi DRMO, which handles large quantities of surplus parts used mostly on Army aircraft. The GAO collected budget, procurement, inventory, weapon system application, and disposal information from item managers, equipment specialist, and policy officials at the Oklahoma City Air Logistics Center, Kelly Air Force Base, Texas; the Corpus Christi Army Depot, Corpus Christi, Texas; the Army's Aviation and Troop Command, St. Louis, Missouri (now Aviation and Missile Command, Huntsville, Alabama); and the Naval Inventory Control Point, Philadelphia, Pennsylvania. The GAO also visited and collected data from members of the National Association of Aircraft Communication Suppliers Inc., Alamo Aircraft Supply, Inc., and Dixie Air Parts Supply,

Inc. to identify specific problems they were having with DOD's disposal practices.[5]

These GAO reports were used extensively during the research conducted for this thesis. The information was considered accurate and was not independently verified. While each report focused on slightly different information relating to the DOD's logistical problems, there was a theme that was common to all the reports. The DOD does not efficiently manage repair parts.

Circular A-76

The Congressional Budget Office has been studying public and private roles in maintaining military equipment, particularly at the depot level.[6] The Office of Management and Budget (OMB) Circular A-76 has been reviewed for its applicability to the implementation of the PVS concept. The circular has been updated and revised many times since the Bureau of Budget first released it in 1967. The Circular was reviewed for its applicability to this thesis and its historical applicability to the

determination of privatization of defense related activities.

The purpose of OMB Circular A-76 was to establish government policy that would allow private sector companies to compete with government organizations when performing functions that do not, necessarily, have to be conducted by government organizations. The popularity of privatization seems to drive the acceptance of converting more and more government functions toward the use of contractors.

Study Projects

Individual study projects at the U.S. Army War College, the Industrial College of the Armed Forces, and the U.S. Army's Command and General Staff College have focused on "contracting out" as a solution to workforce reductions. Specifically, a thesis completed by Major Samuel S. Evans on "Aviation Contract Maintenance and its Effects on AH64 Unit Readiness" has been used for supplying

background and documentation in the area of increased contractor involvement on the battlefield.

Evan's study investigates the use of contractors to perform aviation maintenance on U.S. Army helicopters. It traces the development of the concept of privatization and the evolution of this process. The study analyzes why privatization became necessary in aviation maintenance and the effects of privatizing the maintenance of AH64 helicopters using the criteria of training, costs, readiness and deployability.[7] Many of the concepts found in this thesis are similar to Evans' thesis. The major difference being the use of contractors for maintenance operations versus the use of contractors for supply operations.

Evans' study concludes that the structure, training requirements and other nonproductive maintenance tasks required of today's soldiers forces commanders to hire contractors to maintain the readiness of the aviation fleet. His study also concludes that contractors are also cost effective when their cost and maintenance production is

compared to soldiers. He asserts that based on the use of contractors to perform aviation maintenance in many of the Army's most recent contingency deployments, the deployability of contract maintenance is not a problem. This conclusion relates directly to the purpose of this thesis.

Periodicals

Many articles have been written on the use of PVS and the Army's adoption of the Velocity Management Program. These articles can be found in various military periodicals, such as the *Army Logistician* and the *Army Times*. Articles pertinent to this study have been reviewed and are used for supporting documentation of this thesis.

An article was written for the January-February 1996 edition of *Army Logistician* by Major General Thomas W. Robinson on the status of the Velocity Management Program.[8] Another article written for the July-August 1997 edition of *Army Logistician* by Douglas P. Kucyk also covers the precepts of velocity management.[9] A recent article in *Army Times*

written by Jack Weible discusses the driving force behind privatization.[10] These and other articles are used throughout the thesis as supporting documentation.

Many of these articles are pertinent to this thesis because they provide the most current and accurate status of DOD programs that are being developed and used to reduce the Army's logistics pipeline. These articles were used to identify current trends in the Army's efforts toward the more efficient use of resources.

Applicability

The literature listed above has been reviewed to determine its applicability to the research question posed in this thesis. The sheer number of research efforts being conducted to determine solutions for converting to a smaller military seemed to negate the need for further review. However, this thesis concentrates on a slightly different concept and its impact on maintaining the AH64 Apache helicopter.

The Army's aviation maintenance doctrine may change as a result of decisions made in the near future. The acceptance of PVS into the overall logistical support concept of Army helicopters could result in changes that will have a large impact on the way the Army maintains its aviation supply parts. The lack of a universal definition of prime vendor support between the Army's logistics activities was reason enough to conduct such a study.

Internet

There is increasing activity being conducted to determine the usefulness of PVS in the Army. Much of this activity is informal and is conducted through the use of electronic mail sent from one activity to another. During this study, I attempted to incorporate the results of ongoing changes to the concept of PVS into my thesis. This included assessing the issues that are being reported by the Army's logistic communities and incorporating them into the study. To do this, I used the worldwide

communications system referred to as the Internet. Many bulletin board systems and home-pages of defense agencies were accessed to find information and points of contact for further review. Credit it given to those activities or individual authors that contributed to the completion of this thesis.

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[1]General Accounting Office, *Inventory Management: The Army Could Reduce Logistics Costs for Aviation Parts by Adapting Best Business Practices* (Washington, D.C.: U.S. Government Printing Office, 1997) 5.

[2]Ibid.

[3]General Accounting Office, *Army Inventory: Budget Request for Spare Parts are not Reliable* (Washington, D.C.: U.S. Government Printing Office, 1997) 3.

[4]General Accounting Office, *Defense Inventory: Management of Surplus Usable Aircraft Parts Can Be Improved* (Washington, D.C.: U.S. Government Printing Office, 1997) 7.

[5]Ibid.

[6]Congressional Budget Office, *Public and Private Roles in Maintaining Military Equipment at the Depot Level* (Washington, D.C.: U.S. Government Printing Office, 1995) 3.

[7]Samuel S. Evans, "Aviation Contract Maintenance and Its Effect on AH64 Unit Readiness" (Master of Military Art and Science thesis, U.S. Army Command and General Staff College, 5 June 1997) iii.

[8]Thomas U. Robinson, "Velocity Management: A Status Report," *Army Logistician*, (January-February 1996) 20.

[9]Douglas P. Kucyk, "Velocity Management Ahead of Its Time," *Army Logistician*, (July-August 1997) 32.

[10]Jack Weible, "Cash Scramble Spurred on by Aging Weapons," *Army Times*, 5 January 1998, 36.

CHAPTER 3

RESEARCH METHODOLOGY

The research conducted for this thesis was predominantly exploratory in nature and focused mostly on secondary data. It began with an exhaustive review of literature that pertains to the privatization of military activities and the use of alternate methods of performing aircraft logistic functions. In this case, the terms "secondary data" and historical are interchangeable.

In order to determine the if PVS should be used in support of the AH64 Apache, it was useful to understand the origins of the PVS concept and what driving forces were behind it. To accomplish this, a wide range of documentation in the form of technical publications was reviewed for historical insight.

Upon the completion of the historical research, a systematic analysis of determining consistent patterns in aviation logistics and summarizing the appropriate details of the findings was

accomplished. These details follow a logical flow in chapter 4 of this thesis.

As explained in chapter 1, the purpose of this thesis is to determine if the U.S. Army should include the concept of prime vendor support in the maintenance and logistics for the AH64 Apache helicopter. This thesis begins by defining the term "prime vendor support" as it relates to the AH64 Apache. While the term itself is not new, its definition differs throughout the defense department agencies. The lack of a pure doctrinal definition of the term required the establishment of a single definition to use solely for the purpose of this thesis. The term was defined to a clear, comprehensible meaning in order to assess whether the concepts it proposes should be used for the maintenance and logistical support of the Army's AH64 Apache.

Next, this thesis answers the remaining six subordinate questions identified in chapter 1. This included an exhaustive review of acquisition and contracting material for the AH64 Apache and other

battlefield systems that are currently supported by this concept of PVS. Beyond the literature review, informal interviews were conducted with AH64 logistics personnel from the Army's Aviation and Missile Command (AMCOM), the U.S. Army Aviation Logistics School (USAALS), the Program Executive Office for Aviation (PEO Avn), and the U.S. Army Aviation Center (USAAVNC). Members of a General Officer Steering Committee (GOSC), whose purpose is to report on the progress of contract negotiations with the prime vendor of the Apache helicopter, were also interviewed.

Answering the subordinate questions listed in chapter 1 led to the criteria used to determine which major impacts of PVS are desirable and which major impacts are undesirable. This criteria is expanded on by the sample risk management plan found in Appendix D. While this sample risk assessment plan was developed for the M109 Fleet Management Pilot Program, its application to the determination of risks associated with PVS are crucial to the identification and under standing of these risks.

Finally, a comprehensive analysis of the above information was conducted to determine if the Army should include PVS in its aviation support doctrine for the AH64 Apache. Although the need for further analysis exists, this analysis must be evolutionary in nature and updated continuously as efforts are made to proceed toward the acceptance and implementation of PVS for the AH64 Apache. The final chapter of this thesis includes recommendations developed as a result of the comprehensive analysis performed as part of the requirements of this thesis. These recommendations are based on the research conducted for this thesis and include consideration of those findings that resulted from the its completion.

CHAPTER 4

FINDINGS AND ANALYSIS

Privatization

To fully understand the concepts of prime vendor support, one must understand the significance of privatization and of how privatization can be a driving force for initiatives that are recently evolving in the Army's aviation logistics arena. Privatization, simply stated, is the hiring of a private company to perform tasks formerly completed by public employees, and it is far from new. Privatization originated during the Eisenhower administration. During his 1954 budget address, President Eisenhower promised to privatize federal activities which could be more appropriately conducted by private industry.[1] He continued this emphasis in 1955 when he claimed: "The federal government will not start or carry on any commercial activity to provide a service or product for its own use if such product or service can be procured from

private enterprise through ordinary business channels."[2]

Despite President Eisenhower's policy, it took until 1967 for the Bureau of Budget (now the Office of Management and Budget) to issue guidance for the implementation of practices that would support such a policy. The guidance came in the form of OMB Circular A-76, which required federal agencies to review their commercial activities and allow the private sector to compete with the government for activities the private sector could perform at a lower cost.[3] It took several revisions of OMB Circular A-76 to produce results. However, by the end of the cold war, the OMB was proclaiming great cost savings. According to OMB statistics, from fiscal year 1981 to fiscal year 1987 private contractors beat government employees in 55 percent of these competitions and this resulted in an average savings of 30 percent from original costs.[4]

Not all governmental activities are restricted by the rules established by OMB Circular A-76. Table 1 of OMB Circular A-76 (see appendix B) lists

those functions related to the act of governing which cannot be privatized.[5] Note that activities performed exclusively by military personnel who are subject to deployment in a combat, combat support, or combat service support role are included in this category. During the cold war, the DOD recognized that over-reliance on privatization, especially for such activities as military equipment maintenance, was risky. However, with the end of the cold war and the expectation of total U.S. industrial mobilization diminished, privatization has began to infiltrate those areas previously interpreted as inaccessible. The DOD is now allowing more privatization in the area of maintenance on military equipment.[6]

There are forces at work that will continue to drive all aspects of Army aviation logistics toward privatization: the downsizing of U.S. Armed Forces, the increasingly more technical equipment being fielded in Army aviation, and DOD's acceptance of privatization in aviation logistics. To produce savings that would fund weapons spending, Defense

Secretary William Cohen proposes opening up as many as 150,000 military jobs to competition from private firms within the next five years.[7] The National Defense Panel, an independent panel commissioned by Congress to critique the Quadrennial Defense Review, goes further by maintaining up to 600,000 jobs should be opened to private competition.[8]

The privatization of Army aviation maintenance was evident in the Gulf War and will continue into the foreseeable future.[9] The Army is now faced with the decision to accept the privatization of aviation supply parts management, as it has accepted the privatization of many maintenance functions, or to reject this new concept as too great a risk to the deployment capability of aviation units.

GAO Conducts Reviews

Along with the already discussed forces that are driving aviation logistics toward privatization is DOD's inability to efficiently manage expensive aviation repair parts. Pursuant to a congressional request, the Government Accounting Office (GAO)has

been reviewing the Army's logistics system for aviation parts. In a series of reports, GAO exposed the Army's repair pipeline, characterized by a 2.6 billion investment in aviation parts, as being slow and inefficient.[10] According to one report, in the last ten years the GAO has conducted over thirty reviews of the Army's logistical problems. These reviews have highlighted issues related to large inventory levels, inefficient repair practices, and information systems problems. While the Army continues to take actions to correct these logistics problems, they have yet to be completely resolved.[11]

According to the GAO, it took the Army approximately four times longer than a commercial airline to ship a broken part to the depot and complete repairs. After examining a sample of twenty-four different types of items, the GAO calculated it took the Army an average of 525 days to repair and ship certain aviation parts to field units located around the world. The Army itself estimates only eighteen days should have been needed to repair the items. The remaining 507 days were

used to transport and store the parts, or were the results of unplanned repair delays. Because of this lengthy pipeline time, the Army buys, stores, and repairs more parts than is necessary.[12] The amount of time required by the system is important because the Army must invest in enough inventory to resupply units with serviceable parts and cover the amount of time it takes to move and repair parts through this process. If repair time can be reduced, inventory costs could also be reduced. In an Army-sponsored study, it was noted that reducing the repair time of one helicopter component from ninety days to fifteen days would reduce the inventory requirements for that component from $60 million to $10 million.[13]

The GAO also found that there are four main factors contributing to the long pipeline time of the Army's logistics system: (1) broken repairable parts move slowly between units and repair depots, (2) repairable parts are stored in warehouses for several months before and after they are repaired, (3) repair depots are inefficiently organized, and

(4) consumable parts are not available to mechanics when needed.[14]

Best Business Practices

The GAO reports focused on the DOD and Army logistics system. The objectives of their most recent report were to examine the current performance of the Army's logistics system, to review the Army's effort to improve the logistics system and reduce costs, and to identify opportunities where best business practices could be incorporated into the Army's logistics operation.[15] In their analysis, GAO compared the Army's processes with similar private sector organizations. The private sector, driven by a global competitive environment, faces the same challenges facing the U.S. Army: improving service while reducing costs. As a result, many companies have adopted innovative business practices to meet customer needs and to retain profitability. These practices are often referred to as best business practices.

The GAO identified four best business practices used in the airline industry that have resulted in significant improvements and reduced logistics costs and that have potential for use in the military system. These practices are the prompt repair of items, the reorganization of the repair process, the establishment of partnerships with key suppliers, and the use of third party logistics services.[16] In the opinion of the GAO, these practices address many of the same problems the Army is facing and represent practices that could be applied by the Army. When used together, they may help maximize the Army's inventory investment, decrease inventory levels, and provide a more flexible repair capability.

Velocity Management

The Army has been working hard to eliminate these inefficiencies in its management of logistics. Some refer to a revolution in military logistics as the most significant change to military affairs in the last decade. For the past several years, there

have been many new initiatives throughout the Army to manage resources better. The main initiative designed to improve the Army's logistics process has been the Velocity Management (VM) program. Velocity management was developed to improve the speed and accuracy that material and information flow through the Army's logistics pipeline.[17]

On 20 January 1995 the first session of the velocity group (VG) was convened. The VG is a board of senior Army logisticians dedicated to implementing VM. Over the last few years, the VM program organization has matured. The VG is now supported by four Process Improvement Teams (PIT). The PITs are: the Order Ship Time PIT (OSTPIT), the Repair Cycle Time PIT (RCTPIT), the Stockage Determination PIT (SDPIT), and the Financial Management PIT (FINPIT).[18]

The VM main approach to process improvement is three phased: first, define the current process; second, measure the output of the current process; and third, initiate changes to improve the process. So far, the VM efforts have been focused on

processes relating to order ship time, repair cycle time, and stockage determination.[19]

The OSTPIT defines OST as "the time elapsed from requisition of an item to receipt of the item by the user." Their measurement baseline for the process was determined by averaging OSTs from 1 July 1994 through 30 June 1995. During that time, OST took 26.5 days. Changes that have already been implemented to the process, as a result of VM, have reduced OST at Fort Bragg by 60 percent, Fort Hood by 40 percent, Fort Campbell by 58 percent, and Fort Irwin by 56 percent.[20]

The RCTPIT defines RCT as all of the time required to repair parts inclusive of the time extending from the motor pool and flight-line, through the depot, to when the part is ready for the user. While focusing on repair cycles, this team has examined the Apache and Blackhawk helicopters, the M1A1/A2 Abrams tank, the M9 Armored Combat Earthmover, and repairable components of the mobile subscriber equipment. They have completed an initial set of repair cycle data measurements for

some of the weapons systems. They are continuing to aggressively examine repair processes from organizations, through depot, and back to unit supply to find changes in processes that will reduce nonproductive maintenance time.[21] The intent is to enhance and streamline maintenance operations by eliminating those nonvalue added tasks that have become too common in the Army's logistics processes.

The SDPIT defines Stockage Determination as "stocking the right parts at the right place to ensure uninterrupted logistics support."[22] Initially, this team focused their efforts on validating the need for pockets of inventory such as Authorized Stockage Lists (ASL), Prescribed Load Lists (PLL), and bench and shop stocks. They have since shifted their focus to alternative stockage approaches. The team is now developing a mission statement centered on three main concepts: first, move to a systems approach for determining stock position; second, improve performance metrics; and third, ensure support for the transition to war.

The VM program has accomplished a great deal in the past several years. Specifically, the OSTPIT has successfully reduced OST of class IX repair parts throughout the Army. On 30 September 1997 Captain Gus Pagonus, the OSTPIT action officer in CASCOM, presented the statistics shown in Appendix C at a VG meeting. Note that several CONUS installations are now below eight days OST. An increase in OST during the month of August can be attributed to the UPS strike. The OSTPIT is also focusing on other classes of supply. However, since most aviation repair parts are considered class IX supply, I only focused on these improvements.

VM at the National Training Center

The VM initiatives have been decreasing OSTs throughout the Army. However, the immediate results of VM have probably been best recorded at the U.S. Army's National Training Center (NTC). In an article published in the March-April 1997 edition of "Army Logistician," Colonel Charles W. Enis, Jr., at the time Deputy Commander for logistics at the NTC,

and Lieutenant Colonel Joseph L. Walden, at the time Commander of the NTC's Materiel Management Center, showed how applying VM initiatives at the NTC reduced OSTs dramatically, lowered the dollar value of the authorized stockage list by millions and led to better maintained equipment.[23]

The NTC conducts twenty-eight-day training cycles approximately ten times per year. This results in an operating tempo three to four times higher than the rest of the Army. The high operating tempo, coupled with approximately 200,000 requisitions per year and an OST of fifty-eight days for ninety-eight percent of all requisitions, explains why the NTC became interested in VM.[24]

In August 1995 a logistics team visited the NTC to look at recent logistics initiatives that were developed to improve supply support. The team found problems concerning shipping times from the closest supporting depot, Defense Depot San Joaquin (DDJC), to Fort Irwin. One shipment was found to have gone from DDJC to Oakland, to Ontario, to Victorville, to Barstow where it sat on a dock for two days waiting

for shipment to Fort Irwin. It took a total of ten days to get a nonmission-capable supply shipment moved 400 miles.

The NTC commander created a VM site improvement team that analyzed the OST process using the VM model as a guide to define, measure, and improve their processes. As a result of the improvements implemented by the site improvement team, the OST for 95 percent of all requisitions dropped to 15 days by February 1996.[25] The NTC then presented results of the reduced OST to a semiannual Authorized Stockage List Review Board. Recommendations to adjust the authorized stockage list resulted in a reduced dollar value of the authorized stockage list by over $9 million. Velocity management initiatives that resulted in lower OSTs included a materiel release order control system and an automated manifest system. However, Colonel Enis and Lieutenant Colonel Walden credit the reduction of the RCT by the general support maintenance company for making the most dramatic reductions possible.

Prime Vendor Support Definition

There are many innovative processes that fit into the VM program that have been developed in recent years. One initiative that actually preceded VM and has been receiving much attention recently, is the use of Prime Vendor Support (PVS). For the purpose of this report, PVS is defined as the privatization of supply parts management. The DLA developed this supply chain management concept to improve the efficiency and effectiveness of its logistics support.[26] Its purpose is to eliminate the layering of supplies at multiple echelons and shift inventory, inventory management, transportation, and personnel costs from the Government to commercial firms. Prime vendor support can be thought of as VM in action, and its concepts answer the third recommendation made in the GAO report on Best Business Practices: "the establishment of partnerships with key suppliers."[27]

Direct Vendor Delivery/Electronic Data Interface

One of the first uses of prime vendor concepts began in 1992 when the Tank Automotive and Armament Command (TAACOM) recognized the need to reorganize its multimillion dollar spare and repair parts acquisition process. They developed a program called Direct Vendor Delivery/Electronic Data Interchange (DVD/EDI). Under this initiative, the traditional acquisition process is bypassed by purchasing directly from a major vendor using EDI purchase orders and by allowing vendor shipments of requisitioned material to go directly to the end user instead of a central receiving point.[28] The results of this new initiative included decreased OSTs for shipment of truck tires within the U.S. an average of 37 percent. The DVD/EDI program continues to be very effective at TAACOM. This innovative management philosophy was the precursor to DLA's prime vendor initiatives and exemplifies a significant commitment to solving the problem of long transit times and improving the efficiency of the overall logistics system. However, while prime

vendor concepts have proven to be useful in the streamlining of supply parts management, it has yet to be determined if PVS can be effectively applied to support the Army's AH-64 Apache helicopter.

Prime Vendor Support Analysis

Having defined PVS, I will now address the remaining subordinate questions listed in chapter 1 of this thesis. What are the benefits and costs associated with PVS of the Apache? The primary benefits fall into three categories. First, if the implementation of PVS reduces the OST of repair parts throughout the Army's pipeline, there can be a dramatic reduction in the inventory the Army needs to maintain to support the Apache. This will result in substantial savings in inventory costs. Second, if parts delivery is streamlined from manufacturer to user, the operational readiness rate of the Apache should also improve. Reducing the time mechanics must wait for parts will reduce the time an Apache is not mission capable due to supply. Third, benefits of privatizing supply parts

management include the positive effects associated with allowing the free market system to choose the most efficient manner of supplying repair parts for the Apache. This is the intent of privatization and OMB Circular A-76.

The costs associated with PVS of the Apache are yet to be fully determined. Contracting-out with the manufacturer could result in less savings than originally anticipated depending on the specific requirements of the resulting contract. Costs associated with contracting-out will need to be offset by identifying and eliminating those inefficiencies that are the result of a large inventory and a complex pipeline. The results of other PVS initiatives should be closely scrutinized to ensure the advantage of all efficiencies are being captured.

How will PVS affect the Army's maintenance system? The Army's three-tier maintenance system (AVUM, AVIM, DEPOT) is highly reliant on effective parts management regardless of the pipelines inefficiency. Mechanics rely on having parts

available for use when they are needed. Currently, stockage of parts at each level of maintenance is required to ensure aircraft availability rates remain high. Without making adjustments to the three-tier system, direct ordering of parts from the prime vendor by each level of maintenance may be required. The prime vendor will have to assume responsibility for receiving requisitions, transporting, delivering, and storing parts to all users. Consideration must be given to the location of all users at all levels of maintenance.

How will PVS affect the Army's supply system? The system of repair parts management will be taken over by the prime vendor. Processes must be established to provide for the requisition, transportation, delivery, and storage of repair parts. Initially, processes established for requisitioning Apache repair parts directly from the vendor may have to be supplemental and compatible to existing processes. However, the TAACOM DVD/EDI program has shown that advances in automation can be effectively applied to create solutions that will

provide for standard requisitioning directly from the vendor.

How will PVS affect the Army's training of logistics personnel? If PVS of the AH64 Apachee becomes accepted as a concept of repair parts management, the training of Army logistics personnel will be affected in two different ways. First, training those aviation logistics personnel already performing duties in the field will have to be accomplished during on-the-job training. This should not pose too difficult of a task and most probably can be included as a requirement of any contract between the Army and the prime vendor. Second, programs of instruction at the U.S. Army's Aviation Logistics School and the U.S. Army's Aviation Center would have to incorporate the new processes and concepts proposed by PVS. Again, this can be accomplished without too much difficulty. A discussion with the commander of the Army's Aviation Training Brigade at Fort Rucker, Alabama, has confirmed the possibility of implementing such a change.

The impact of training new processes and concepts to aviation logisticians can be accomplished. The associated risk involved comes during the period of transitioning from the existing process to the processes required by PVS. The development of electronic data interfaces with the prime vendor, such as the one used by TAACOM's DVD/EDI program, can be used, not only to develop new processes for PVS, but to develop training models for the Army's school houses.

Can PVS be applied worldwide and under any conditions including combat? This may be the most crucial question to be addressed. Before proceeding too far down the road to PVS, the Army must determine if this change in support doctrine will affect its ability to deploy aviation assets in all theaters of operation. On the surface, it appears that contractors are willing to support the Army's deployments. Maintenance contractors are already performing support operations in various parts of the world.[29] Desert Storm showed how civilian contractor employees can be relied upon to support

military operations on foreign and sometimes hostile soil.[30] However, is the Army ready to accept the use of noncombatants in all theaters of operations? What will current and future allies response be to the deployment of U.S. contractors in their countries? These questions must be fully considered prior to accepting changes in aviation support doctrine that will result from PVS. Methods to reduce or eliminate the risk of failure of the Army aviation support doctrine must be developed.

What are the alternatives to PVS for support of the AH-64 Apache? The Apache's PVS program is only one initiative that falls under the concepts of velocity management. Reducing logistics costs by streamlining repair parts management and reducing OSTs will remain a primary goal of current and future processes regardless of the acceptance or refusal of PVS. However, PVS seems to be the best initiative available that proceeds toward the Army's goal of lowering the logistics costs of the AH-64 Apache. As the Apache's PVS program matures, the questions presented in this report will have to be

addressed by contractors, government contracting personnel, logisticians, engineers, and the Army's leadership. These and many other questions are now being addressed by the Apache PVS Team.

Apache PVS Team

In a response to a proposal from a contractor to provide PVS for the AH64 Apache, the U.S. Army's Aviation and Missile Command (AMCOM) has formed an Overarching Integrated Product Team (OIPT) with four subordinate Working level Integrated Product Teams (WIPT) and an Alpha Contracting Team to determine what the concepts of PVS for the AH-64 Apache should look like. The use of OIPTs, WIPTs, and Alpha contracting has emerged as part of DODs acquisition reform efforts. All are intended to get functional specialists talking with contractors with an intent to reduce negotiation, concept formulation, and implementation time and improve on a product-in this case PVS. The WIPTs for Apache PVS cover engineering, costs, logistics, and support and

administration. The OIPT reports to a General Officers Steering Committee (GOSC).

The PVS team is currently considering allowing the Apache's Target Acquisition and Designation System (TADS) to change to a two-level maintenance system. They are also considering allowing the contractor to become the repair parts supplier for all Apache parts with a part window at the Aviation Intermediate Maintenance's (AVIM) Service and Supply Activity (SSA).

This is just the start. If PVS is accepted, a new integrated product team (IPT) will be formed to look at major components of the aircraft to determine if the components should also change to two levels of maintenance. However, no decision has been made to accept or reject the contractors proposal or the concept of PVS itself. All risks associated with this new concept of support for the AH-64 Apache will have to be examined prior to accepting or rejecting it.

Risk Management Planning

The potential benefits of implementing PVS for the AH64 Apache do not come without risks. A few of these risks have already been identified in this report. Others have been identified by the AH64 PVS Team, who have undertaken an extensive risk analysis effort.[31] This is the first step in risk management.

Risk management is the process of identifying the areas of a project which have the greatest uncertainty and then taking appropriate management action to minimize or eliminate their potentially negative effect. Within the process of risk management for the implementation of this new concept, attention is being focused on three primary areas of concern: technical risk, scheduled risk, and costs risk. In the case of PVS for the AH64 Apache, cost and schedule risk have traditional meanings. However, technical risk takes on a different perspective than it does for the normal acquisition for repair parts. Prime vendor support requires very little development of new technology, but does require significant reengineering of the

business process. This process form of technical risk can be heavily influenced by the behavior of people who perform the tasks that make up the process. The AH64 PVS Team must perform a risk evaluation using a methodology that captures the people side of technical risk as well as its traditional aspects.[32]

The AH64 Apache is not the Army's only piece of equipment being evaluated for potential use of PVS. The M109 Howitzer is also being examined as a candidate for this new concept of support. As part of a pilot program to determine the usefulness of PVS for the M109, a risk management plan was completed. Appendix D shows a matrix that was developed as part of this plan. The matrix identifies risk and ranks the risk from highest to lowest. This risk matrix, while developed for the M109, constitutes a comprehensive listing of risks similar to those associated with PVS for the AH64 Apache. From this list, the pilot team addressed each risk with the intent to eliminate those risks

that can be eliminated and to take steps to mitigate all others.

The AH64 Apache PVS team is in the process of developing a risk management plan similar to the M109's, to include a risk matrix that should be very similar. Risks identified by the team will be evaluated for potential solutions and recommendations. The recommendations will be forwarded to the GOSC where the determination on whether or not to proceed with the PVS concept for the AH64 will be made.[33]

Members of the AH64 PVS Team recognize a radical departure from business as usual is in and of itself a significant risk and has adapted a strategy to routinely involve the entire Army aviation logistic community to help manage this risk. Representatives from various Army aviation logistic related organizations have participated in several meetings with the AH64 PVS Team. The idea is to facilitate risk management by ensuring knowledgeable personnel are in place to study all aspects of this new concept and its development.[34]

How to pay for PVS of the AH64 Apache is another complicated issue with imbedded risk. Theoretically, new or more money should not be needed. More money is spent on the current system of parts management for the AH64 Apache than is anticipated in the future considering potential savings from PVS. However, sources of that money are diverse, spending has a broad array of controls, accountability is placed at various levels, and the money is often not solely dedicated to supply parts management of the AH64 Apache. Those with spending authority value their ability to use money at their discretion. Setting aside funds for the implementation of PVS of the AH64 Apache could prove quite difficult. The Costs WIPT of the Apache's PVS Team must study the financial aspects of the PVS concept and develop cost modeling tools and financial strategy to support PVS.

One of the largest uncertainties that presents risk is the use of PVS during deployed operations. Prime Vendor Support must provide support to all

customers in garrison and out, in peace and war time. This requirement creates risk with communication, safety, transportation, performance metrics, and financial business practices. Prime Vendor Support will be dependent upon a direct communications link between the customer and the prime vendor. Currently, in some garrison and most deployed sites, the capability for a reliable direct communication link to the prime vendor does not exist. Technical support via field reps and electronic tools may not be practical in highly mobile environments. Performance incentives based on savings may not be appropriate for war time scenarios. These uncertainties present risk.

There are legal risks to PVS as well. Public law provides the means for any nonsupportive political entity to base a legal challenge to PVS. Should the concept of PVS be adopted, there will be a potentially wide scope of employee impact. This creates a substantial risk of legal challenges to the use of PVS at the local and national level.

According to the AH64 prime vendor support team chief, the team is working diligently to identify and manage all risk associated with PVS.[35] This will be the most crucial work completed by the AH64 PVS Team and will most probably be the determining factor in the success or failure of the PVS concept for the AH64 Apache helicopter.

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CHAPTER 5

CONCLUSIONS AND RECOMMNDATIONS

Conclusions

This thesis documents the research conducted to determine if the U.S. Army should include the concept of prime vendor support in the logistics of the AH64 Apache helicopter. In so doing, it follows a logical path beginning with defining "prime vendor support" as it relates to the AH64 Apache. It is important to note that no doctrinal definition existed at the time this research was conducted. The definition was derived from similar logistics management processes used in various agencies throughout the DOD. It is equally important to understand that the processes being considered for use as prime vendor support of the AH64 Apache have not yet been fully developed and may themselves change with time. However, regardless of how these processes may change, the following definition of prime vendor support is valid for this thesis and has provided an excellent starting point from which

to base all research. Prime vendor support is defined for this thesis as the privatization of supply parts management and includes the shifting of inventory, inventory management, transportation, and personnel costs relating to the logistics of the AH64 Apache from the government to a commercial firm.

The findings contained in chapter 4 of this thesis provide the background necessary to understand how this new logistics support concept began and what forces are involved with its further development. The DOD's inability to efficiently manage repair parts has led to the use of commercial business practices within the DOD and continues to act as a driving force toward privatization.

Through the Army's Velocity Management Program, it becomes clear how the DOD is capable of applying processes developed in the highly competitive civilian sector. Prime vendor support is one more tool to be used in an effort to streamline the Army's logistics pipeline and reduce the OST of AH64 Apache repair parts.

A thorough analysis of the seven subordinate questions listed in chapter 1 of this thesis is found in chapter 4. While transitioning to PVS may be difficult to accomplish, research revealed no definite reason that should preclude its implementation. On the contrary, a cost savings resulting from the reduced need for high inventory and the reduction of OST could be realized.

These savings will not come without risks. The risks identified in this thesis, and other risks yet to be realized, must be thoroughly analyzed through a process of risk management that takes into account the behavior of people who perform the tasks that will make up the PVS processes. Through proper management, these risks must be eliminated or mitigated to an insignificant degree. Again, there were no findings during the research that indicated this would not be possible.

Recommendations

The findings of this thesis lead to the above conclusions and five recommendations. The first

recommendation is for the DOD to establish a common definition for the term "prime vendor support." A common definition for this term would help with the standardization of terminology between defense agencies. The exact definition would most probably change as the concept of PVS is developed. However, defining PVS would allow for the understanding of these changes as they take place. The definition used for PVS in this thesis seems generic enough to encompass all of the PVS concepts and can be modified as theses concepts change. Again, this thesis defines PVS as the privatization of supply parts management by the prime vendor and it includes the shifting of inventory, inventory management, transportation, and personnel costs relating to the logistics of a certain item from the government to a commercial firm.

The second recommendation pertains to the acceptance of PVS as a logistical program to be used for supporting the AH64. The AH64 Apache PVS Team should proceed with developing processes to implement PVS and pursue a contract with the AH64

Apache's prime vendor to provide logistics support under this new concept. The team must identify risks early in the process and adopt innovative management techniques to mitigate those risks to an insignificant level. The risks identified in the example at Appendix D of this thesis, while developed for PVS of the M109 Paladin, are generic to the PVS concept and constitute a near comprehensive listing of those risks that will be related to PVS of the AH64.

This leads to the third recommendation. The AH64 PVS Team must identify those risks that are peculiar to the AH64 and add them to those risks already identified in appendix D of this thesis. The process of eliminating or mitigating those risks must be a continuous process during the development of the AH64 PVS program. New risks will become apparent as the program evolves. The list of risks will have to be updated as the program progresses toward implementation.

The forth recommendation is for the Army Materiel Command (AMC) to begin a thorough process

of evaluating all Army weapon systems in an attempt to identify those systems that could become potential candidates for the prime vendor support concept. However, it must be understood that government employee unions show a propensity to challenge any effort that may reduce the amount of work of their members. Prime vendor support of the AH64 will involve numerous agencies and organizations, any of which could choose to challenge the process of placing this work under the prime vendor. Even if they find no fault with PVS of the AH64, they may be concerned about the impact of this new concept of support for other potential systems. Government employee unions and political agendas must be added to the list of risks to the future of PVS development.

The fifth recommendation is for the DOD to continue to seek new and innovative ways to increase the efficient use of resources. Older systems of logistical support may not be acceptable in terms of efficiency. Prime vendor support may be only one method of optimizing resources. Continued

investigation by the GAO and other government agencies may help to identify additional processes that can be optimized through the use of privatization.

APPENDIX A
AH64 READINESS BY MACOM AND DIVISION

UNIT	FMC%	UNIT	FMC%
1996		1995	
FORSCOM	77	FORSCOM	67
USAREUR	79	USAREUR	76
ARNG	47	ARNG	50
USAR	53	USAR	62
EUSA	88	EUSA	84
MACOM TOTAL	68.8	MACOM TOTAL	67.8
1ST Armored Div	80	1ST Armored Div	78
1st CAV Div	79	1st CAV Div	74
3rd Inf Div	78	3rd Inf Div	69
3rd ACR	66	3rd ACR	66
4th Inf Div	73	4th Inf Div	69
17th Avn Bde	92	17th Avn Bde	89
18th Avn Bde	74	18th Avn Bde	71
101st Avn Bde	81	101st Avn Bde	74
DIVISION TOTAL	77.9	DIVISION TOTAL	73.8
1994		1993	
FORSCOM	67	FORSCOM	64
USAREUR	78	USAREUR	68
ARNG	55	ARNG	54
USAR	43	USAR	40
EUSA	80	EUSA	35
MACOM TOTAL	64.6	MACOM TOTAL	52.2
1ST Armored Div	86	1ST Armored Div	64
1st CAV Div	69	1st CAV Div	73
3rd Inf Div	81	3rd Inf Div	68
4th Inf Div	48	4th Inf Div	61
17th Avn Bde	81	17th Avn Bde	35
18th Avn Bde	73	18th Avn Bde	66
101st Avn Bde	69	101st Avn Bde	67
DIVISION TOTAL	72.4	DIVISION TOTAL	62.0

AH64 READINESS BY MACOM AND DIVISION

UNIT	FMC%	UNIT	FMC%
1992		1991	
FORSCOM	67	FORSCOM	65
USAREUR	70	USAREUR	62
ARNG	56	ARNG	53
MACOM TOTAL	64.3	MACOM TOTAL	60.0
1ST Armored Div	73	1ST Armored Div	57
1st CAV Div	67	1st CAV Div	63
3rd Inf Div	75	3rd Inf Div	57
4th Inf Div	65	4th Inf Div	69
18th Avn Bde	67	18th Avn Bde	73
101st Avn Bde	75	101st Avn Bde	82
DIVISION TOTAL	70.3	DIVISION TOTAL	66.8
1990		1989	
FORSCOM	58	FORSCOM	39
USAREUR	74	USAREUR	62
ARNG	57	ARNG	43
MACOM TOTAL	64.6	MACOM TOTAL	48.0
1ST Armored Div	74	1ST Armored Div	47
1st CAV Div	56	1st CAV Div	34
3rd Inf Div	57	3rd Inf Div	42
101st Avn Bde	82	101st Avn Bde	73
DIVISION TOTAL	67.3	DIVISION TOTAL	49.0

APPENDIX B

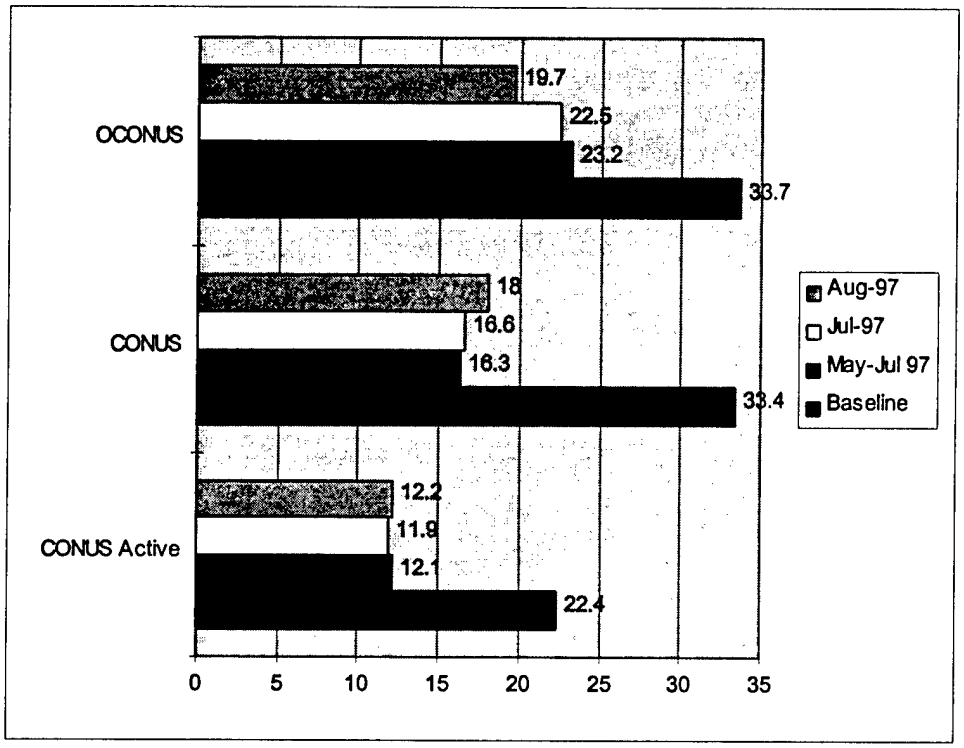
OMB CIRCULAR A-76
(Categorizations of Government Functions)

Functions related to the act of governing	Functions related to monetary transactions and entitlements
Criminal investigations, prosecutions, and other judicial functions	Tax collection and revenue disbursements
Management and direction of the armed services	Control of the Treasury account and money supply
Activities performed exclusively by military personnel who are subject to deployment in a combat, combat support, or combat service support role	Administration of public trust
Conduct of foreign relations	
Selection of program priorities	
Direction of federal employees	
Regulation of the use of space, oceans, navigable rivers, and other natural resources	
Direction of intelligence and counterintelligence operations	
Regulation of industry and commerce, including food and drugs	

The 1983 revision of the OMB Circular A-76 laid out specific procedures for contracting out. The new procedures required each governmental agency to schedule government operations that could potentially be performed by a private contract for review. The A-76 Circular exempted certain activities from the program because they were "inherently governmental in nature." This table shows the functions related to the act of governing that cannot be privatized.

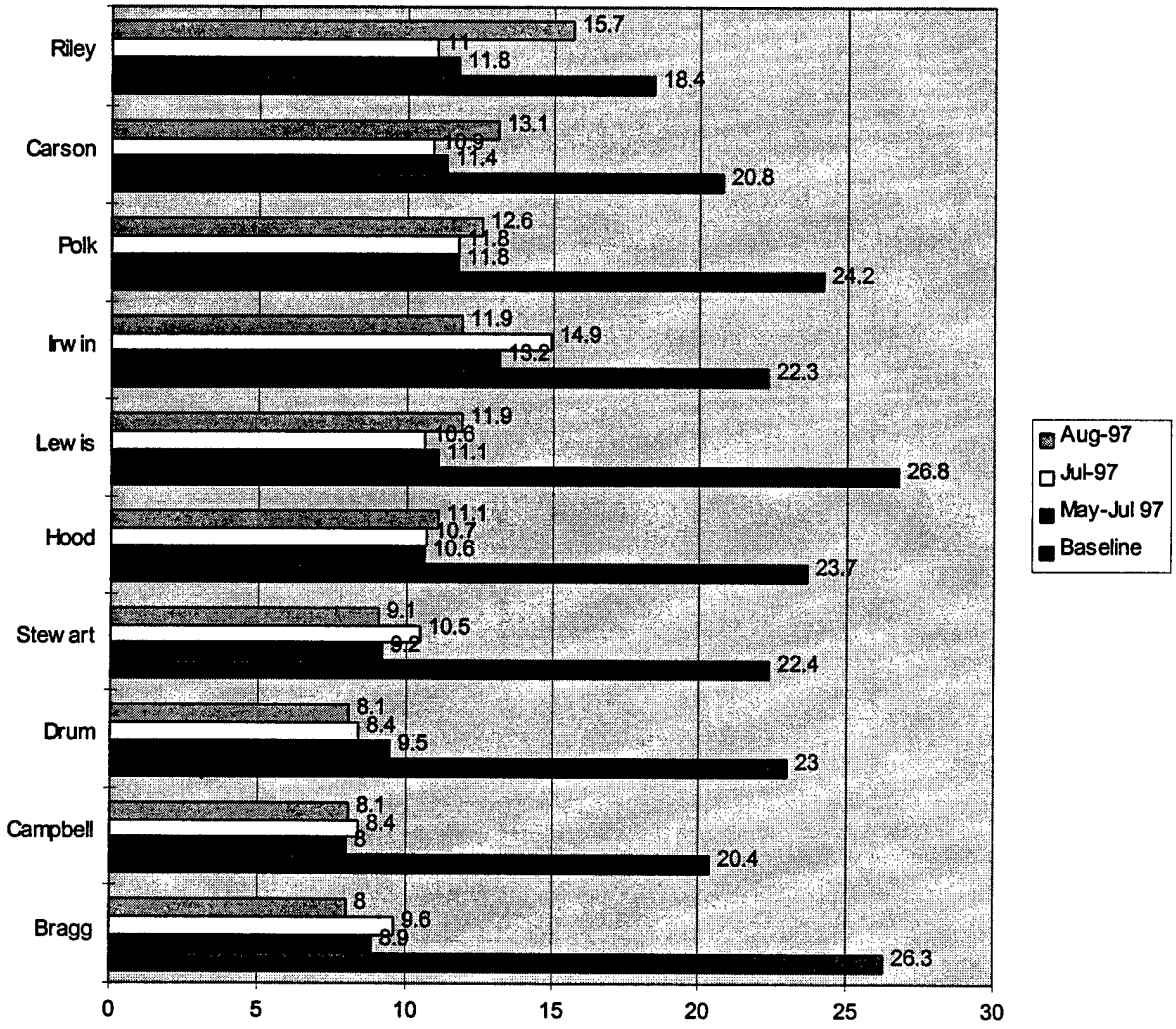
APPENDIX C

OVERALL OST FOR CLASS IX PARTS
(no backorders)



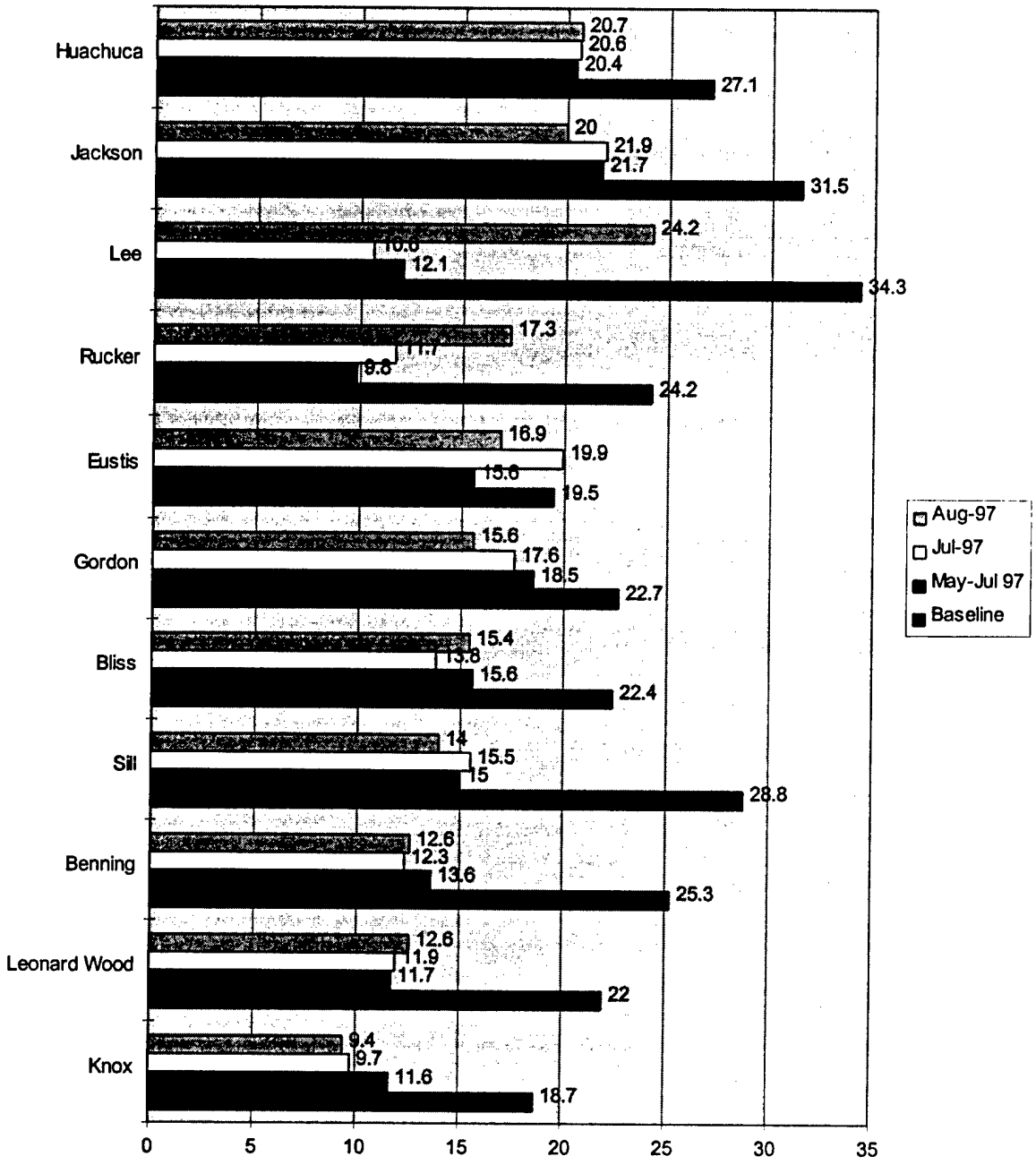
The above chart was created using data provided by the Velocity Management Order and Ship Time Process Improvement Team. The figures represent the average number of days for OST for all priorities of requisitions submitted during the period referenced in the legend.

FORSCOM OST FOR CLASS IX PARTS
(no backorders)



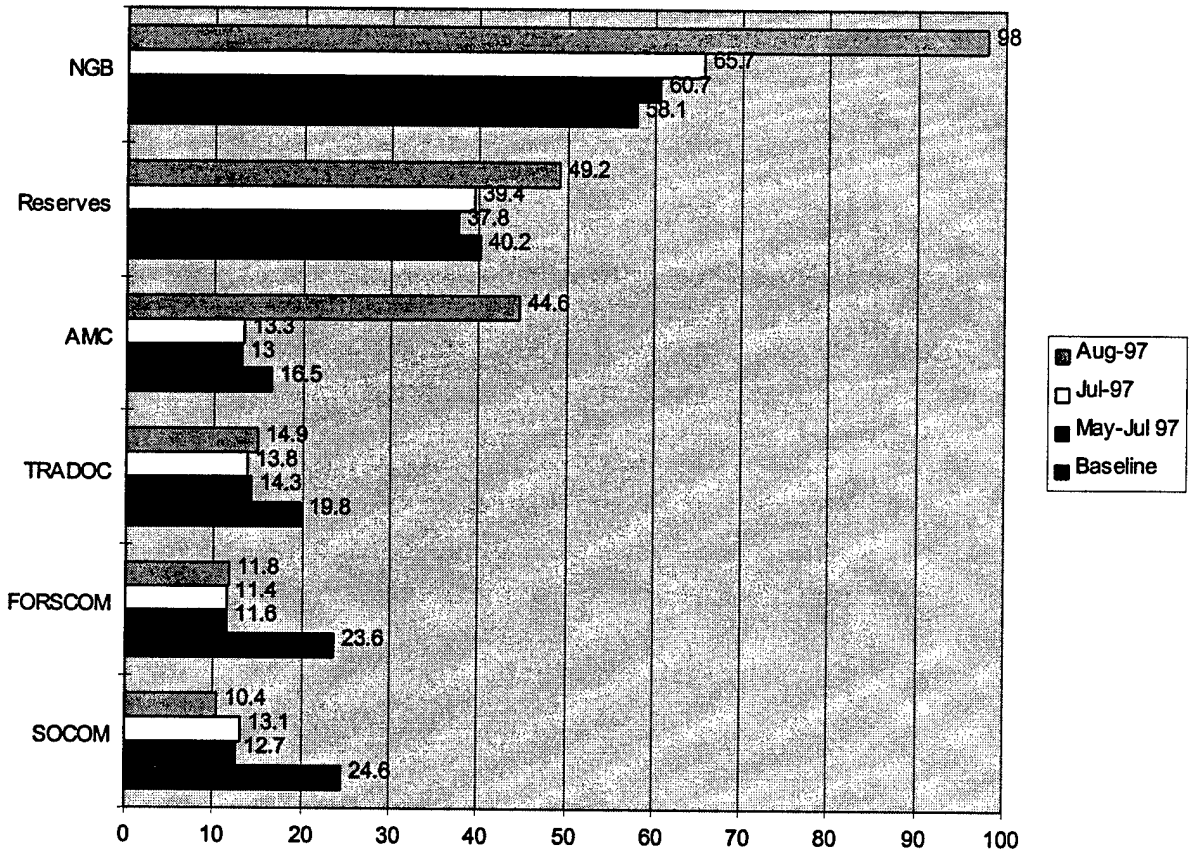
The above chart was created using data provided by the Velocity Management Order and Ship Time Process Improvement Team. The figures represent the average number of days for OST for all priorities of requisitions submitted during the period referenced in the legend.

TRADOC OST FOR CLASS IX PARTS
(no backorders)



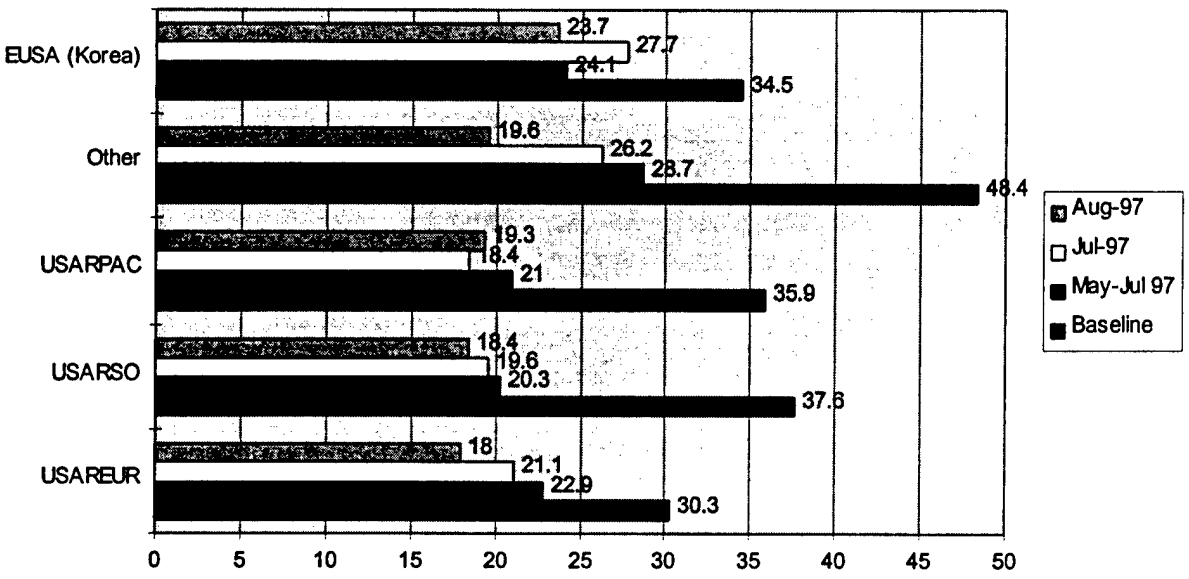
The above chart was created using data provided by the Velocity Management Order and Ship Time Process Improvement Team. The figures represent the average number of days for OST for all priorities of requisitions submitted during the period referenced in the legend.

CONUS MACOMS OST FOR CLASS IX PARTS
(no backorders)



The above chart was created using data provided by the Velocity Management Order and Ship Time Process Improvement Team. The figures represent the average number of days for OST for all priorities of requisitions submitted during the period referenced in the legend.

OCONUS MACOMS OST FOR CLASS IX PARTS
(no backorders)



The above chart was created using data provided by the Velocity Management Order and Ship Time Process Improvement Team. The figures represent the average number of days for OST for all priorities of requisitions submitted during the period referenced in the legend.

APPENDIX D

M-109 RISK MANAGEMENT PLAN

RANK	RISK AREA	RISK DESCRIPTION
1.	Funding - Pilot Program contract	delay or inability to allocate Various OMA and PA fund lines to the FM
2.	Political Agendas	stopping, delaying, or changing FM for political purposes
3.	Performance metrics and initiatives	inability to establish performance requirements and accurately measure and reward FM performance
4.	OMB A-76 and MEO compliance	negative impact on program objectives from A-76 compliance
5.	Funding - pre-contract activity	delays or insufficient funding t support program management and acquisition activity prior to contract award
6.	Cost / Savings	variance from planned budgets and savings projections
7.	Government employee unions	lack of cooperation and potential legal challenges
8.	Deployed operations	inability to provide FM support to customers when out of garrison
9.	Business culture change	resistance to a program change in business practices
10.	Ineffective contract structure / requirements	unplanned or undesirable FM support due to faulty contract requirements

RANK	RISK AREA	RISK DESCRIPTION
11.	Communication capability	inability to implement direct communication between the customer and the fleet manager
12.	Transition planning	ineffective planning and execution of fleet manager
13.	Commercial business practices	inability of the fleet manager to fully use commercial practices
14.	Parts inventory management	unsatisfactory resolution of issues or performance regarding parts ownership, requirements, obsolescence, surpluses, stock level, etc.
15.	Financial transaction methodology	inability to establish an efficient process for billing and paying
16.	Technical data	unsatisfactory resolution of ability, format, ownership, access, etc.
17.	Repair part availability	inability of the FM to provide adequate supply of parts
18.	Personnel management	difficulties arising from government personnel disruptions due to outsourcing of the M109 FOV support
19.	Customer acceptance of FM	lack of customer support and acceptance of FM
20.	Business hardware /software	inability to provide equipment needed to support a direct link to the FM

RANK	RISK AREA	RISK DESCRIPTION
21.	Requisition spending approval	difficulties related to effective fiscal controls when ordering directly from the FM
22.	Legal conflicts	conflict with core policy, 60/40 work split, and $3 million competition rules
23.	Disposition of current parts inventory	trauma involved with the disposition or transition of current parts inventory
24.	Organic capability	loss of organic technical and manufacturing capability
25.	Security of information	issues arising from use of the Internet for direct communication to the FM
26.	Modernization through spares	inability to implement business practices that cause the FM t provide better performing and more cost effective spare parts
27.	Status reporting	failure to have a system to routinely report financial, part delivery, performance, etc. status to all customers
28.	Scope of parts supply	inappropriate decision on what parts to have the FM provide - (all, just M109 unique, only mission critical, etc.

RANK	RISK AREA	RISK DESCRIPTION
29.	Operational software	performance risk involved with responsibility for life cycle support of operational software
30.	Asset visibility	failure of FM to provide status data for the entire inventory
31.	Future overhaul programs	sensitivity to FMs interest and viability if no overhaul programs are developed
32.	Non-performance by fleet manager	failure of the FM to provide required products and services
33.	Priority setting	failure of the FM to provide an equitable system for allocation of parts in short supply
34.	Training	inability of the government or the FM to provide needed customer traing
35.	Contract award protest	delays that may occur due to protest
36.	Configuration management	ineffective configuration control or imposition of excessive oversight that prevents the FM from using commercial CM practices
37.	Technical support	inadequate technical support at the customer level
38.	Field maintenance	disruption of maintenance operations due to imposing the FM in the process
39.	War reserves	failure to maintain adequate stock or inability to deliver when needed

RANK	RISK AREA	RISK DESCRIPTION
40.	Future FMS	sensitivity of the FMs interest and business visibility if no FMs are available
41.	Future product improvement programs	sensitivity of the FMs interest and business visibility if no PIPs occur
42.	Industrial base visibility	affect on the industrial base if the fleet management concept is implemented
43.	Future production programs	sensitivity of the FMs interest and business viability if no production programs occur
44.	Parts delivery time	unsatisfactory delivery time of parts
45.	"Retreat plan"	failure to have an executable plan to retreat out of fleet management
46.	Contractors on the battlefield	liability or lack of presence of FM personnel to provide support in war
47.	Host nation agreements	imposition of requirements from host nations that would prevent or restrict the FMs support operations

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